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TV Science Drama? Big Try Draws Yawns at Networks

Prime-time audiences will never know what might have been in the coming TV season now that two major networks have declined a science drama series proposed by Nobel physicist Leon Lederman, aided by nearly $100,000 in seed money from the National Science Foundation and the Department of Energy.

But as a comedy in its own right, this bizarre scheme for employing TV drama to help create "a more scientifically literate society" merits more attention than it has received so far. SGR has obtained relevant documents from NSF and DOE, including the Lederman group's grant application, their plot and character outlines for a two-hour pilot program, and the grant awards, which run to the end of this year. The story of the still-born TV series goes as follows:

Titled "The Dean," the series was to be built around John Kyrian, a "charismatic powerhouse of Persian-Armenian extraction" at the head of the GRALE Institute—General Research at the Leading Edge—"a powerful research venue that combines the scientific and engineering creativity of a Bell Laboratories with the pedagogical passion of an MIT." Elsewhere in the pitch, the institution is referred to as "a smaller version of MIT."

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GRALE, the plot outline explains, "was created and bankrolled to an unprecedented strength by a clique of the most powerful corporate moguls in the nation—they are known as the Gates Group"—not Microsoft Bill, but Adrian, "a black man of about 40," who is "one of the wealthiest and most influential men in the world," head of a "pantheon of corporate leaders ... that thinks the intellectual capital of the nation is in danger of extinction."

There's more, of course, in plot and characters, but for a bit of enriching background it is to be noted that Lederman, former Director of the Fermilab and past President of the American Association for the Advancement of Science, has long been active in the cause of elevating mass scientific literacy, which he rates at deplorably low levels.

Moreover, as quoted recently in the *New York Times*, and reiterated in a telephone conversation last week with SGR, Lederman fears the nation is "riding a tide of anti-science," with dangerous consequences for the support of science and democracy itself. Gripped by what he describes as "a crazy, blind faith in education," Lederman has long labored to improve science education in Chicago-area schools and

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The R&D Budget Watchers Are Spotting Hopeful Signs

The annual budget cycle is at the sensitive stage on Capitol Hill where none of the proponents of science-related activities dares jinx the outcome with public recognition of hopeful signs.

But the doomful mood, so prevalent last year, is gone, for several reasons: Expectations have been recalibrated downward, the last session of Congress snarled more than it bit at most R&D spending, and budget-balancing plans for a one-third cut by the year 2002 are seen as too remote to matter in the year-by-year tempo of budget politics. In White House and Congressional budget plans, the worst is actually planned for the so-called outyears—the Washington euphemism for not now, and maybe never.

The result is a whispered and cautious optimism about

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In Brief

The word in Washington is that Bill Clinton and big science will have a happy rendezvous in the electoral autumn in politically crucial California, on the occasion of a Presidentially announced go decision for the $1-billion-plus National Ignition Facility at the Lawrence Livermore National Laboratory.

A proposal to rename the National Science Foundation as the National Science and Engineering Foundation lost in the House, 339-58, on May 29. The change, proposed by Rep. Joe Barton (R-Tex.) to recognize NSF's major role in engineering R&D, was approved by the Science Committee, 23-22. But NSF bristled, and its friends rallied to a blocking amendment by Rep. Vernon Ehlers (R-Mich.), backed by Rep. Roscoe Bartlett (R-Md.), a PhD physiologist, who warned: "We need to be careful when changing names because we may do more than change the name." With science power waning in Washington, the NSF community is acutely sensitive to intrusions on its territory.

The Advanced Technology Program lives on at the National Institute of Standards and Technology, despite severe budget cuts and repeated GOP vows to terminate it as a crass manifestation of corporate welfare. After a long hiatus, ATP has announced a new competition for $20 million to $25 million in cost-shared awards, described as the only batch to be given out this fiscal year.

Plans to activate the National Foundation for Medical Research, as a private financial adjunct for NIH, are moving along [SGR, March 15]. George Galasso, a retired NIH official, is running the effort. Paul Berg, of the Stanford School of Medicine, is serving as Acting Chairman of the Board while bylaws and a charter are being drafted.

. . . Senate Less Stingy About Discretionary Spending

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the budget deliberations now in progress in Congress for fiscal 1997, which begins next October 1.

Under today's conditions, a "good" budget is defined as a slight increase for the coming fiscal year, and nothing worse than a slight decrease. A "great" budget is anything that tops the rate of inflation, which remains low. The apparatchiks who attend to science budgets and politics squander no time on dreams of the substantial annual growth that the research agencies once considered normal. Maybe someday, but not now.

A number of these specialists are telling SGR that things are not looking too bad as the omens accumulate, particularly in early returns from House Appropriations Subcommittees. The figures are generally below the White House's requests, but somewhat higher than current levels.

The National Science Foundation, for example, came through this phase of the appropriations gauntlet with an overall increase of 1 percent above its current budget, but with a boost of 4.7 percent in its research programs. The increase for research was basically funded by eliminating NSF's plans for $100 million in expenditures on academic infrastructure—a bottomless pit regarded with suspicion in many governmental quarters. "As of now, it's a pretty decent mark," an NSF official told SGR—for non-attribution.

NASA gained a bit in its first budget round in the House, rising from $13.9 billion to $14.2 billion, despite a nearly $90 million reduction from this year's level of support for the Earth Observation Satellite, a Clinton-Gore favorite that some House Republicans regard as a mischief-making tool of intrusive environmentalists. But even with the reduction, the satellite program would be funded at $1.2 billion.

The grapevine has it that the prospects for the National Institutes of Health, the most favored of all research agencies, are looking particularly bright. "If we believe all the rumors," a legislative monitor for one of the big health-related organizations remarked to SGR last week, "NIH should do well."

The outcome now being talked about would be the 6.5 percent increase advocated by the biomedical lobby and its Congressional champion, Rep. John Porter (R-Ill.), plus additional funds for a new Clinical Center at NIH. The White House budget called for an increase of less than 4 percent, with the full cost of the Center included in the overall budget for fiscal 1997. Under that arrangement, many of the institutes would backslide financially, or at best stand still. But they'd do nicely at 6.5 percent and separate year-by-year funding for the Clinical Center. Referring again to rumors, our source described them "as more optimistic than at this time last year."

It's still early in the budget cycle, with first-stage results yet to come for many research agencies. But the holy dedication to deficit reduction that put the Republican Congress and the Clinton White House on parallel courses seems to be fading.

Budget Schedule is Tight

Public revulsion against last winter's shutdowns of government agencies virtually precludes a repetition, but that doesn't assure timely passage of the 13 appropriations bills needed to finance the fiscal 1997 budget. With the legislative calendar whittled down by a late start this year, and vacations and the campaign looming, there's increasing talk that time will run out and the government will once again have to resort to continuing resolutions to fund the agencies. CRs mean lower spending and big disruptions, but without the appropriations bills, they're the only way to keep things running.

The Senate budget resolution exceeded the House version by some $5 billion in the domestic discretionary account—which funds the civilian research agencies. And when the two chambers met in conference, the Senate largely prevailed, bringing threats of mutiny from hardcore conservative House Republicans.

But it may be that the research enterprise has achieved a special status through persistent lobbying on the theme of major economic benefits from relatively small federal expenditures. There is notably waning interest, for example, in the orthodox Republican plans for eliminating the federal role in industrial research.

The crowning legislative achievement of retiring House Science Chairman Robert Walker is the Omnibus Civilian Science Authorization Act, passed by the House May 30 on party lines following a nasty ideological debate on the appropriate federal role in R&D. The bill, among other revampings of Washington's responsibilities, would terminate the Advanced Technology Program at the National Institute of Standards and Technology and eliminate one of NSF's seven directorates—a move aimed, though not so acknowledged, at the social and behavioral sciences.

The debate was intense, but the participants realized that it was disengaged from political reality. There's no matching bill in the Senate, nor will there be in that chamber, where the Republican majority never enlisted in the Gingrich Revolution.

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Editor and Publisher **Daniel S. Greenberg**
Associate Publisher **Wanda J. Reif**
Circulation Manager **Glen D. Grant**

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. . . Aiming for a Science Counterpart of 'LA Law'

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continues those activities as a Professor at the Illinois Institute of Technology.

These efforts, however, have essentially been on a local level. An affable, wisecracking guy with an egalitarian manner and the Nobel halo that opens doors, Lederman has looked with envy on the mass-audience TV spectaculars linked to other professions.

Germinating in his mind was a TV series that would be "the 'LA Law' and 'NYPD Blue' of science and scientists." To carry out the project, Lederman teamed up with Gerald Wheeler, then head of Education and Human Resources at the AAAS, which agreed to serve as homebase for seeking financial support, initially from NSF. Following meetings with Lawrence Tisch, then head of CBS, and Dan Burke, a director and former CEO of ABC, Lederman and Wheeler stated in an application to NSF that the TV executives appeared interested but were non-committal. Hope, however, was drawn, they said, from the TV chiefs' invitation "to return with a full presentation."

Preparation of a "storyline" was then taken on by Adrian Malone, producer of several major TV science series, including "Ascent of Man" and "Cosmos." An advisory committee was lined up consisting of assorted luminaries from science and TV, including Nobel laureate Michael Bishop; Donald Langenberg, Chancellor of the University of Maryland; Frank Getchell, Executive Producer of Children's Television Workshop, and Alice Huang, Dean for Science at NYU.

The Lederman-Wheeler application to NSF appropriately reflected two worlds where extravagant rhetoric is the norm—TV and science. The time is ripe for the proposed TV series, the application stated, because "the broadcasting industry is at a turning point. The proliferation of cable channels has meant that more specialized audiences have become the rule, not the exception." As a result, the applicants explained, the major networks "are in the process of redefining the nature of their programming and their audience," with CBS—the Lederman group's first choice for the science series—aiming its programming "at an older audience with a higher income. The same may be said of HBO. They are after an audience that watches NFL football *and* 'Masterpiece Theater'," according to the analysis of TV demographics by Lederman and colleagues.

Having projected an improbably diverse assemblage of viewers, Lederman and company went wide throttle in their application to NSF: "This is precisely the type of audience that will find 'The Dean' appealing," they assured the Ballston bankroll, adding that, "The series promises to provide an intelligent and insightful look into a world where opinions and discoveries are created that become part of the marrow of our society. But its audience is not the public-television-only viewers. The target audience," the application stated, "is the 30+ million viewers captive to the sitcom-dominated prime time offerings."

NSF took the bait and in May 1995, awarded the AAAS a $49,500 "Planning Grant for a 'Prime-Time' TV Science Drama." In March of this year, an additional $45,320 was provided by the Department of Energy, which funneled the money through NSF. Lederman told SGR that the TV project has also received $50,000 from the Garfield Foundation, endowed by Eugene Garfield, founder of the Institute for Scientific Information and editor and publisher of *The Scientist*.

Most of the money was budgeted for writer Malone and a researcher/writer assistant, with Lederman and Wheeler taking part on an "in kind" basis, according to the letter of application to NSF.

The sums involved were minuscule in terms of full-scale TV production costs—estimated by the two applicants at "$1 million per episode." But the money would suffice for preparing a "storyline" for a two-hour pilot. Optimism apparently was high, because even before work began on the story line, Lederman and Wheeler stated in their application that "it will be beneficial to also test the enthusiasm of potential sponsors," adding that they "will meet with corporations identified by the AAAS development office once the written material is completed."

In the story line that finally emerged, the Dean, newly arrived at GRALE within a mini-MIT, "must deal with department heads who are constantly clamoring for his time and influence, not to mention more money. The Dean is a man of charisma and a terrific fund raiser. He has a Persian background—his grandparents were rug merchants," the story line continues, adding, without explanation, that this genealogy gives him "a no-nonsense approach to even the most academic questions. He can feel comfortable at a luncheon of english [sic] professors, and yet also trade ideas about new DNA sampling techniques in a back stairwell."

The story line states that the Dean's interactions with a variety of issues and people "will be symbolized by the desk in his office—twenty feet long and four feet wide, it is covered with up to 40 files, neatly arranged. The Dean spends half an hour each day circling his desk, thinking about each issue, and how they relate to each other."

The issues facing the Dean were initially outlined in "possible story ideas," as distinct from the pilot program, including one under the heading of "Genetic engineering," in which the "Dean must preside over the furor produced when the biology department tries to patent certain genes. These patents would allow the department to collect money any time any researcher anywhere tried to manipulate a few specific human genes."

Another story possibility concerned military contracts, which the mythical mini-MIT needs "to maintain its edge and its budget"—the largess of moneybag Gates apparently not sufficing. "The Dean becomes aware that his new job will mean supervising departments that are working on spy

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. . . Script Raises Concerns of Academic Reviewers

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satellites and some forms of 'defensive' biological warfare weapons."

And then there are "Conflicts with Christian fundamentalists who attack the university for its high level science, conducted in opposition to the sacred truth as they see it."

The pilot episode which ultimately evolved from this preliminary jousting focused on "three plots about altered states of matter, of body, and of mind." The first, "The Brain Plot," tells of a researcher whose "self-experimentation into his own sleeping brain ... has landed him onto a slippery slope toward madness and suicide."

Then there's "The Longevity Plot," in which rivalrous researchers in GRALE's "Cy-Phi" Department "may have discovered the fountain of youth." As they battle over their findings and their implications, "The audience watches as demographic, political, sociological and other trends evolve in time, all of this demonstrating the awesome power of the Cy-Phi Department."

"The Cosmology Plot," the final entry in the tripartite pilot program, "centers on the most audacious alteration of matter that is conceivable"—raising the possibilities of the destruction of this universe or the creation of another. The Dean asks the principal investigator: "Do we buy a ticket? Is the experiment to proceed?" Answer not stated in the outline.

But then there's an extra, an "Infowar Subplot," concerning "a story from Dean Kyrian's past—of a woman who haunts him, of faith turned to dogma, of love turned to hate and of Holy War." Descriptions of the characters populating the mythical mini-MIT describe Dean Kyrian as "built like a barrel—short, powerful, explosive, scheming and infinitely compassionate."

Thadeus [sic] Polk, the head of the Cy-Phi Department, is known as "The Colonel." He is "from the 'black world,' a silent and deliberate spook."

Andrus Potemkin, "Formerly a top notch Russian physicist," is described as "a man of appetite and heart. In another time, he would have led a Cossack charge."

Then there's Melissa Gebbe, who is not only "statuesque and graceful," but who "can virtually single handedly design and build a massive accelerator."

The cast includes Anthony Beresford, "a haughty Brit" who "dresses with nauseating precision" and "professes to care about the world, but abuses those closest to him."

Beyond their profession of no interest, nothing is known about the response of the network TV executives to the pilot outline of Lederman and company. SGR, however, has been provided with assessments by several academic colleagues to whom Lederman sent an outline late last year.

"I think it is marvelous," wrote Walter Massey, President of Morehouse College and former Director of the National Science Foundation. Massey, however, said he found "the plot episodes very difficult to read," which may be due, he said, to his unfamiliarity with TV outlines. But, proceeding with the critique, Massey wrote, "The idea of having Mr. Gates being black is imaginative, and I like it very much, but I noticed there are no black scientists among the very brilliant group who are central to the innovative, intellectual guts of the program."

Noting that the GRALE staff "is brilliant beyond the pale of most ordinary people," Massey added: "I thought that one of the messages we wanted to convey is that science is a welcoming community where the major breakthroughs require a level of extraordinary brilliance and commitment, but that there is room for people of above-average intelligence and commitment who are not necessarily in the genius category." Massey advised Lederman to test the pilot program "on a few college-age or even high-school age groups to get a better reading."

"Gripping" was NYU Dean Alice Huang's term for the GRALE outline, but she, too, had reservations, stating that the Longevity Plot wouldn't pass muster with some molecular biologists. She also commented that "I like all the different Brits and Armenians; but if you walk into any university these days there are many Orientals. Will they be in the background?"

An "engrossing set of stories," is how Linda Wilson, President of Radcliffe College, described the TV pilot outline. But her expressions of enthusiasm waned. "I don't think it would be as good as Masterpiece Theater," she wrote to Lederman, adding that "I do worry that if it doesn't get tamed fairly soon, the 'Frankenstein' character of the scientific content could begin to do more harm than good to science and scientists."

Warren Washington, a research administrator at the National Center for Atmospheric Research, described the outline as "a fantastic script and a great job of writing." Washington reported, however, that he had discussed the TV project with Neal Lane, Director of NSF. Lane's "only concern," Washington wrote, "was the portrayal of scientists as real people may tarnish our image with the public." (SGR has not confirmed that account of Lane's response).

Lederman told SGR that he's not giving up. "I'm ever hopeful," he said. "We'll interest some TV network or some deep pockets," he said, "or we won't."

He said he's "networking" to gain the interest of Steven Spielberg. "I've got a second cousin related to Spielberg's cleaning lady. I'm working on it."

"The chances of a bunch of amateurs like us breaking into prime time were poor from the start," he continued, but the prospects have improved, he said, rising from "half a percent to three percent."

Asked what he thought the TV series might accomplish on prime time, Lederman said, "It's not physics one." The hope, he said, is to "teach something in each program." He emphasized "skepticism" as an important quality of scientists that he would like to convey to the public. "In 40-50 one-hour shows, you could teach a lot," he said.—DSG

Non-Profit Pay Checks

The American Association for the Advancement of Science

The fastest rising number in the recent tax returns of the American Association for the Advancement of Science (AAAS) is the salary of the head hired hand, Executive Officer Richard S. Nicholson, who is credited with putting the organization on a firm business basis following a decade of wobbly finances.

Nicholson, a chemist who moved to the top staff job at the AAAS from a senior post at the National Science Foundation in 1990, was paid $178,136 in 1991, $210,000 in 1992, $234,000 in 1993, and $323,200 in 1994, the year of the AAAS's latest return, filed last November. Nicholson's annual benefits and deferred compensation in the 1991-1994 period ranged from $27,500 to $30,000.

The salaries of other senior staff members are far smaller and in general have grown only modestly. No expense allowances were reported for anyone at the AAAS.

Carl Amthor, Chief Financial Officer (CFO), received $202,418 in salary in 1994 and $27,500 in benefits and deferred compensation. In that year, only Amthor and Nicholson were listed under the tax form's heading of the five highest-paid officers, directors, and trustees. No one else in those categories received remuneration at the AAAS.

In 1993, when CFO Amthor was listed among the five highest-paid employes, his salary was $168,266, with benefits of $30,000; in 1992, the amounts were $136,301 and $29,992.

The 1994 and 1993 salaries and benefits for the others in the top-five employe ranks at the AAAS were as follows:

Beth A. Rosner, Associate Publisher of the AAAS journal *Science*, $160,790 and $26,115; $140,912 and $23,900.

F. James Rutherford, Education Officer, $135,426 and $25,700; $136,842 and $25,220.

Daniel E. Koshland, Editor of *Science* (a parttime post he left in 1995), $140,237 and $16,680; $136,135 and $16,200.

Shirley Malcolm, Director, Education and Human Resources, $112,168 and $24,020; $107,133 and $23,420.

Ellis Rubinstein, Editor of *Science* (a title that ranks as No. 2 following the appointment of Floyd Bloom as successor to Koshland, with the newly created title of Editor-in-Chief), $113,189 and $18,757. Rubinstein didn't make it into the top five in 1993; on the 1992 return he was listed for $100,695 and $16,604. Bloom's pay will show up on the AAAS's next tax return.

The AAAS is best known as the publisher of the weekly *Science*, whose circulation, steady at around 160,000 in recent years, is the largest of any general research journal. Membership in the Association has been rising slowly but steadily, from 132,000 in 1991 to 144,000 last year, while revenues increased from $43.7 million in 1992 to $51.1 million in 1994. Advertising in *Science*, the largest single source of revenue, brought in $17 million in 1994.

The most tangible sign of prosperity is the AAAS's wholly owned new office building in downtown Washington, custom-built at a cost of $58 million. The AAAS occupies 60 percent of the space and the rest is for rent by non-profit organizations.

Following a round of budget-cutting that Nicholson instituted upon taking office, the AAAS is in the black and he intends to keep it that way. In 1995, fearing a deficit that he attributed to an unexpected lack of subtenants in office space that the AAAS was then leasing, 15 staff members were dismissed shortly before the year-end holiday season. The staff currently stands at about 300.

Growth has been strong in grants from government agencies, up from $5.4 million in 1992 to $7 million in 1994, and in awards from private philanthropies, which rose from $4.4 million in 1992 to $6.7 million in 1994. These external funds support a variety of activities, including Project 2061, a major science-education reform program, a fellowship program on science and engineering for diplomats, and assistance to scientists in the ex-Soviet Union.

Energized by the budget-cutting vows of the Republican Congress, the AAAS has cautiously edged toward a more activist role on the Washington scene. The ensuing efforts are ostensibly non-partisan, but in terms of values, anxieties, and networks of personal relationships, the AAAS and the Clinton Administration's senior science officials are intimately allied.

Last July, the AAAS organized and orchestrated an all-day cry-in titled "Unity Under Adversity" [SGR, July 15: "Coming R&D Crash Evokes a Timid Response"] at which the scientific community was warned by Presidential S&T Advisor John Gibbons and colleagues that fiscal doom for science was inscribed in Republican budget plans.

The salary and revenue data here are from the AAAS's tax filings to the Internal Revenue Service on IRS Form 990, the tax form for non-profit, tax-exempt organizations under paragraph 501(c) of the Internal Revenue Code. By law, the forms must be made available for public inspection upon request.

Previously published Pay Checks: Howard Hughes Medical Institute, April 15; National Academy of Sciences, May 1; American Chemical Society, May 15; American Psychological Association, June 1.

Next: American Psychiatric Assoc.

NSF Funds 4 New Centers

Four additional Engineering Research Centers (ERCs)—funded at $12 million each over the next five years—have been approved by the National Science Foundation, raising the current roster of ERCs to 25.

The awards went to the University of Southern California (Integrated Media Systems Center); MIT (Center for Competitive Product Development); University of Michigan (Center for Reconfigurable Machining Systems), and University of Washington (Engineered Biomaterials Center). Many industrial firms will be participating as partners in the operations of the centers.

An Anti-Science Public? Nonsense, Say the Polls

Has the American public turned against science?

The belief that it has appears to be widely held in the scientific community. Nobelist Leon Lederman sums up the attitude in asserting, "We're riding a tide of anti-science."

Throughout the research establishment, others echo that sentiment, citing with alarm the public's enthusiasm for astrology and quack medicines, creationism, gullibility about spoonbending, UFOs and space aliens, and other wacky and even dangerous claims of reality beyond the boundaries of conventional scientific wisdom.

Lederman and others also perceive a link between hostility to science and the public ignorance of science documented in many surveys. In their view, this combination has undermined public support for research and led to the fiscal woes that confront science in Washington.

Science depends on public financing, Carl Sagan recently told the *Washington Post*. But "how's the public going to support it if they don't understand it?" he asked.

The difficulty with this approach is that there's scant evidence of public hostility to science and even less evidence of a connection between public understanding of science and government expenditures on science.

By numerous accounts, the American public is enamored of science and scientists, follows their work with respect and interest and thinks the government should spend more on many fields of research. These affectionate attitudes are registered in 25 years of public opinion surveys commissioned by the National Science Foundation, and regularly reported in its biennial statistical tome on research, *Science & Engineering Indicators*.

(A limited supply of the 1996 edition, 352 pp., is available without charge from: NSF, Suite 965, attn. Ms. Bond, Arlington, Va. 22230; tel. 703/306-1777; fax 703/306-0508; e-mail: <jbond@nsf.gov>; also for sale by the US Government Printing Office.)

The polling results show the following: Asked in 1994 to rank their "confidence in the people running various institutions," 41 percent put medicine at the top, with the scientific community and the military close behind, at 38 percent and 37 percent, respectively.

Science has held the number 2 spot since 1972, when it rated 37 percent on the confidence scale. In the latest survey of confidence, organized religion scored 24 percent, continuing a steady decline over 25 years. Far down the current list were Congress, the press and TV, with 8-9 percent.

In six opinion polls conducted from 1983 to 1995, 84-87 percent of the respondents agreed that "science and technology are making our lives healthier, easier and more comfortable." Sixty percent disagreed with the statement "Science makes our way of life change too fast." Asked to assess the benefits of genetic engineering, only 9 percent agreed that the risks "strongly outweigh" the benefits, while 34 percent took the opposite view.

Science, technology, medicine, space, and the environment ranked high on the scale of news interest, right up there with economics and foreign policy.

A 1992 survey found only 19 percent agreeing that the federal government is spending too much on scientific research, while 34 percent said it spends too little—both figures little changed since 1981. The exception was space research, for which 50 percent said spending was excessive.

Discussing these findings at a press briefing upon release of the *Indicators* report, Jon D. Miller, Director of the International Center for the Advancement of Scientific Literacy at the Chicago Academy of Sciences, scoffed at the belief in public hostility to science. The polling evidence, he said, shows consistent support for researchers and their work. Ignorance about scientific facts and methods is abundant, he noted, but that's a separate problem.

So, what accounts for the bellyaching of Nobelist Lederman and company? The answer is that they grew up on federal blank checks during the go-go days of the Cold War, and now that government spending is under tight controls and skeptical scrutiny, the zip has departed from the economics of research. What they fail to recognize is the big difference between austerity and catastrophe and public frugality and hostility.

Superstition and belief in occult forces and paranormal powers have always drawn a big following, even among the well-educated. But they do not add up to a tidal wave of anti-science. Science is a keystone of American economics and culture, unexcelled in power, influence and public support. It may be psychologically comforting for scientists to believe that their troubles originate in public hostility and ignorance. But it's not true.

Nor is there evidence for linking public scientific literacy with public support of science. In the Golden Age of federal largess that scientists often speak of—sometime in the '60s and '70s, by various accounts—scientific literacy was no higher than it is today, and probably was lower, given the heavy emphasis on science education in recent years.

A plausible turnabout of the hostility thesis might be that government support of science declines as public understanding of science increases. On the face of it, that looks too foolish to warrant any consideration, but it's no less supportable than the prevailing demon theory.

In Print

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From the General Accounting Office, no charge:

Federally Funded R&D Centers [FFRDCs]: Information on the Size and Scope of DOD-Sponsored Centers (GAO/NSIAD-96-54; 52 pp.), summarizes the programs and budgets of the 11 FFRDCs supported by the Pentagon: Aerospace, MITRE, RAND (Arroyo Center, Project Air Force, National Defense Research Institute), Center for Naval Analysis, Institute for Defense Analyses (IDA Communications and Computing Center and IDA-Studies and Analyses/Operational Test and Evaluation), Logistics Management Institute, Lincoln Laboratory, and Software Engineering Institute. The GAO says support, in 1995 dollars, rose from $1.4 billion in 1985 to a peak of $1.7 billion in 1990, and then declined to $1.3 billion in 1995. The report, requested by Senator David Pryor of the Committee on Governmental Affairs, lists prior GAO studies of FFRDCs, many still available.

Private Management of Public Schools: Early Experiences in Four School Districts (GAO/HEHS-96-3; 76 pp.), reports "mixed results" from private management of public schools in Baltimore, Dade County (Fla.), Hartford (Conn.), and Minneapolis. In Baltimore and Hartford, the report says, community opposition has led to early termination of the original five-year contracts. Standardized test scores did not improve in the three systems for which results were available—Baltimore, Dade County and Minneapolis, the GAO reports. But it concludes that in all four systems, "the private management companies made changes that benefited students," including "individualized instruction, greater access to computers, and improved building maintenance and repairs." The report was requested Senator Nancy Kassebaum, the retiring Chairman of the Committee on Labor and Human Resources, and Arlen Specter, Chairman of the Appropriations Subcommittee for Labor, Health and Human Services, Education and Related Agencies.

Federal Downsizing: The Costs and Savings of Buyouts Versus Reductions-in-Force (GAO/GGD-96-63; 33 pp.), says it's cheaper and less disruptive for the federal government to use buyouts rather than reductions in force (RIFs) in carrying out 1994 legislation that calls for a decrease of 272,900 in full-time equivalent positions through fiscal year 1999. The recent record, the GAO states, shows that buyout recipients had an average annual salary of $34,745 for resignees to almost $48,000 for retirees, while the RIFed averaged $29,495. Over a five-year period, GAO calculated, the foregone higher pay would produce greater savings for the government. The salary differential arises because a RIF candidate "can often displace a lower-graded employe with less retention rights who is then separated"—a process known as "bumping and retreating." The report adds that RIFs are "difficult and complex to administer and are often viewed as decreasing employee productivity and morale." The GAO also noted reports that RIFs land hardest on women and minority group employes. The report was requested by Rep. John Mica, Chairman of the Subcommittee on Civil Service, Committee on Government Reform and Oversight.

Order from: USGAO, PO Box 6015, Gaithersburg, Md. 20884-6015; tel. 202/512-6000; fax 301/258-4066.

From the Institute of Medicine, National Academy of Sciences:

Contraceptive Research and Development: Looking to the Future (limited number of copies available without charge, about 325 pp.), cites "good prospects," near and distant, for developing contraceptives that could eliminate millions of unintended pregnancies, but says that research has been stymied for decades by legal, financial, regulatory and social pressures. What's needed, the report states, is a mobilization of public agencies, private philanthropies and industry. Noting the "political dimensions" that led to the abandonment of plans to market the French-developed RU-486 in the US, the report suggests that with philanthropic support, small foreign and domestic firms might undertake research deemed too risky by major companies. Endorsement is also given to a 1990 Academy recommendation for a product liability statute to protect manufacturers whose products are approved by the FDA. Included is a list of ongoing research and financial support related to contraception. The report was produced by a committee chaired by Allan Rosenfield, Columbia University School of Public Health, with support from NIH, the Andrew W. Mellon Foundation, the Rockefeller Foundation, the US Agency for International Development, and the Contraceptive Research and Development Program. Polly F. Harrison of the IOM staff was Senior Study Director.

Order from: Institute of Medicine, Division of Health Sciences Policy, FO-3076; 2101 Constitution Ave. NW, Washington, DC 20418; tel. 202/334-2562; fax 202/334-1329.

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In Print

Official reports and other publications of special interest to the research community

(Copies of publications listed here are available from the indicated sources—not from SGR)

From the National Academy of Engineering (NAE):

Foreign Participation in US Research and Development: Asset or Liability? (194 pp., $29.95 plus $4 for shipping), concludes that foreign sponsorship of R&D in US industry and universities is beneficial for this country and, with limited exceptions in the national security area, should be encouraged rather than subjected to special restrictions. US affiliates of foreign firms accounted for nearly one-fifth of R&D spending by American high-tech firms in 1992, the report states, while university support from abroad was far smaller, accounting for merely 1-2 percent of all academic R&D, mostly concentrated in a few institutions. Both sectors and the general economy benefited, the report states, because R&D tends to enrich the intellectual atmosphere of the locale in which it is performed. The report, by a committee chaired by Alan Schriesheim, Director of the Argonne National Laboratory, is part of an NAE series, "Prospering in a Global Economy," for which previous titles are listed.

Order from: National Academy Press, 2101 Constitution Ave. NW, Washington, DC 20418; tel. 1-800/624-6242 or 202/334-3313.

From the American Association for the Advancement of Science:

Congressional Action on Research and Development in the FY 1996 Budget (96-11; 60 pp., $8.95 for AAAS members; $10.95 for others), final figures showing how Congress treated R&D for the present fiscal year, which runs to September 30. In short, the outcome was not as horrendous as was widely feared. Some programs were hit hard—applied research in the Commerce and Energy Departments in particular. But, overall, R&D funds actually rose by 0.4 percent from the previous year. Basic research, favored by the Republicans over the Administration's industrial-aid programs, increased by 4.8 percent, mainly because of big boosts at NIH and DOE. Since the peculiar federal budgeting system ignores inflation, buying power is less than the percentages suggest, but in Washington R&D circles, the budget outcome is regarded with relief.

Research and Development: FY 1997 (96-105; 234 pp., $15.16 for AAAS members; $18.95 for others), 21st in an annual series, presents an agency-by-agency summary of the President's request for R&D for the coming fiscal year—2.1 percent, in total, above the current amount—plus brief reviews of recent R&D policy and budget trends. Both publications were produced by the AAAS in collaboration with various S&T societies and academic organizations.

Order from: AAAS Distribution Center, PO Box 521, Annapolis Junction, Md. 20701; tel. 1-800/222-7809; fax 301/206-9789.

From the National Science Foundation, no charge:

Activities in Support of Two-Year College Science, Mathematics, Engineering, and Technology Education: Fiscal Year 1995 Highlights (NSF 96-83; 69 pp.), reports on NSF's small but rapidly growing role in supporting S&T training in community colleges, where funding by the Foundation rose from $7.6 million in fiscal 1993 to $35.5 million in 1995. Most of the money assists a Congressionally mandated collaborative program between schools and industrial firms, described in an earlier NSF report, ***Advanced Technical Education: 1995 Awards and Activities*** (NSF 96-54; 89 pp.). With education, particularly technical training, espoused by both political parties as a key to employment, the little-noted role of community colleges is drawing political interest and support, most recently in President Clinton's proposal for a federal two-year scholarship program. The report notes that 1470 two-year colleges enroll 44 percent of US undergraduates, and that enrollments of women and many minorities are particularly high in these schools.

Order from: NSF, Division of Undergraduate Education, Attn. DUE Information Center, Room 835, Arlington, Va. 22230; tel. 703/306-1666; fax 703/306-0445.

Semiannual Report to the Congress, Office of Inspector General [IG], National Science Foundation (95 pp.), covering October 1, 1995, to March 31, 1996, logs another batch of money-saving accomplishments, from nit-picking to sizable, by the Foundation's inhouse watchdog. The fiscal items include recovery of $6 million obtained fraudulently by companies participating in NSF's share of the Small Business Innovation Research program; NSF management's adoption of the IG's recommendation for reducing per-diem expenses, from the customary $260 to $130, for nearby scientists serving on NSF panels, and a recommended cutback (now under consideration) in publications of the Ocean Drilling Program, with savings over the next five years estimated at $3.36 million.

Order from: Office of Inspector General, National Science Foundation, Arlington, Va. 22230; tel. 703/306-2001; fax 703/306-0649; e-mail <oig@nsf.gov>.

From the Organization for Economic Cooperation and Development:

Reviews of National Science and Technology: Poland (212 pp., $30), reports Poland is making progress in reforming science and technology policies by opening up decisionmaking and providing new sources of funding for R&D. But support, down by nearly half since 1990, remains inadequate, the report states, and should be raised to at least 1 percent of gross domestic product (the major industrialized nations are in the 2-3 percent range.) OECD also recommends upgrading the State Committee for Scientific Research.

Order from: OECD Publications and Information Center, 2001 L St. NW, Suite 650, Washington, DC 20036-4922; tel. 202/785-6323; fax 202/785-0350. Also available from bookshops and OECD offices in major cities around the world.

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